

DEC 05 2006

SPECIFICATION AMENDMENTS**Please amend paragraph [004] as follows:**

-- In addition to being costly, "help-desk" calls can be annoying for customers because much time is spent gathering preliminary information about a product before the essence of the problem is addressed. Information like the customer's name, the machine serial number, and questions like "what were you doing at the time of the failure," and what information is displayed on the "User Interface," are the content of these questions. A troubleshooting conversation can be particularly annoying to customers lacking time or in-depth knowledge of their equipment's operation and physical attributes. After "preliminaries", the customer must navigate with the representative through a fault isolation tree (e.g., troubleshooting processes) in order to identify the potential problem. Also, many customers lack a useful understanding of how complex equipment operates or with identifying malfunctions. It is particularly difficult because frequently customers do not have a vocabulary to describe the problem or what the User Interface is displaying. --

Please amend paragraph [009] as follows:

-- In accordance with features of the present invention, customer and representative conversations are augmented with electronic troubleshooting data obtained remotely from a troubled system (e.g., a malfunctioning photocopying machine but could be much more general than that). Troubleshooting data can include machine identification, location, diagnostics and operational state data. In addition, the machine identification can be

used by the Help Desk to determine the customer's contractual entitlements to help desk and other assistance (i.e. is the customer on a maintenance agreement?).[[,]]

Please amend paragraph [014] as follows:

-- Troubleshooting information can be formatted in an appropriate data transport language (e.g., XML is currently available and can be used) prior to it being provided over the data network to the remote support enterprise. The troubleshooting information, once received by a remote support enterprise over the data network, can automatically process the information and the enterprise can provide communication with a customer associated with the machine. Corrective data can be developed by the remote support enterprise. The corrective data can be transmitted over the data network where ~~after~~ it is received by the machine. The corrective data is automatically processed by the machine and the database of troubleshooting-related information associated with ongoing functions of the machine is maintained. -

Please amend paragraph [016] as follows:

— FIG. 1 illustrates a networked customer support system in accordance with features of the present invention; --

Please amend paragraph [023] as follows:

-- Referring to FIG. 1, a networked system 100 in accordance with features the present invention is illustrated. A machine 110 will hopefully operate

normally and for reasonable periods of time between repairs or maintenance. When a machine does malfunction, data is collected in a database 115 for use in subsequent troubleshooting (e.g., "troubleshooting data") using software and machine based sensors (not shown) with which the machine is normally equipped. Troubleshooting data ~~120~~ can include machine identity, location, error codes, usage history, and other important data that can be useful to those skilled in the art of repairing the specific machine 110. Once an error is experienced, an electronic document 120 containing the troubleshooting data can be transmitted over a data network 130 to a remote enterprise 150 assigned to provide support for the machine and to customers. The enterprise will typically include a help desk 160 with personnel experienced in providing maintenance and troubleshooting advice for the particular type machine. If more specific, skilled assistance is ever required, the data can be escalated to another representative 170. --

Please amend paragraph [025] as follows:

-- Referring to FIG. 2, a block diagram of machine 110 ~~115~~ incorporating features of the present invention is illustrated. Machines 110 such as modern office and industrial equipment are often equipment with a microprocessor 210 and data communications 250. The devices under consideration (Photocopiers and networked printers, for example - but not limited to these), include a microprocessor 210, data network communication hardware 250 (e.g., Ethernet), an analysis module 220, a user interface 230 and an internal communication bus 240. In accordance with a unique feature of the present invention, a database is provided 115 that is adapted to develop a document 120 containing data useful for troubleshooting the machine 110. The document 120 is developed with input and assistance of the previously

identified elements that are organic to the machine 110. The document 120 can be transmitted over a data network 130 using the communication equipment 250. --

Please amend paragraph [026] as follows:

-- Referring to FIG. 3, Illustrates a block diagram of a customer support enterprise 150. A typical customer support enterprise includes first level support agents 160 and more specialized assistance 170 to which a customer's call may be escalated. The enterprise 150 will typically have an internal network ~~140~~ 150 including call center technology used for routing calls and transporting data. The enterprise is provided with data and voice communications via network 130. An enterprise 150 incorporating features of the present invention will include a database 180 adapted for managing troubleshooting data contained in documents 120 provided to the enterprise via network 130 from remote equipment 110. ~~It~~ It should be appreciated based on the present description that computational methods can take the document from the network 130 and process it and the information previously collected together with information about other devices of the same type to automatically to provide assistance and suggestions using suitable troubleshooting software. The previous information from the device in question, the current information about the same device, and the information about the population of similar devices available to the customer support enterprise can be used together to provide an improved assessment of remediation options that address the trouble the device is having. --

Please amend paragraph [027] as follows:

-- The document 120 ~~130~~ has information on the device after it has failed. The previous data from the device has information on the device prior to failure and may be processed to provide leading indicators of failure. The information about the population of devices may be processed to extract information as to how other devices of the same or similar classes behave under similar conditions (that is, other devices may have had similar symptoms, those symptoms were indicative of a particular problem). With advanced information a device can send a document 120 ~~130~~ leading to an immediate suggestion of what to do in this particular case. --

Please amend paragraph [030] as follows:

-- Referring to Fig 6 5, flow diagram 600 illustrates steps in accordance with a feature of the present invention is illustrated. As shown in step 610, troubleshooting data associated with correcting malfunctions of a machine from a remote malfunctioning machine are received over a data network within a support enterprise. In step 620, the troubleshooting data is automatically processed within the machine. In step 630, a customer support enterprise interacts with a customer using the troubleshooting data provided by the remote malfunctioning machine as a basis for the customer interaction. As shown in step 630, once interaction is completed, the process can proceed into at least three different paths. As shown in step 640, a customer is provided with corrective action based on troubleshooting data provided by the remote malfunctioning machine and the customer interaction. As shown in step 650, corrective action is provided over a data network directly to the remote malfunctioning machine - action that is based

on analysis of the troubleshooting data. In step 660, shown is a step of escalating machine/customer support to advanced support within the enterprise and providing advanced support with at least one of troubleshooting data, analysis of the troubleshooting data, and customer interaction. --

Please amend paragraph [031] as follows:

-- As an example of such a systems operation, suppose that a photocopier provided a file of labeled data containing a set of information about its identification, location, configuration and current state. This is currently possible with high-end photocopiers having network connectivity. ~~It~~ It can be appreciated that photocopiers and networked printers together with other networked devices (e.g. refrigerators, HVAC equipment, and the like) can benefit from the present invention as home networks become more common. The present invention may be applied to any device with the internal structure indicated in FIG. 1. The idea is to make servicing these devices easier using bi-directional connectivity. --

Please amend paragraph [034] as follows:

-- There are a host of available mechanisms for labeling the machine data; however, the preferred embodiment currently in use is the eXtensible Markup Language (XML). XML is an object description language. It should be appreciated that other industry standard or proprietary object description language can be used. Any reference to "object description interface" used herein should be interpreted to also refer to "XML" and any future "object description interface" equivalents that may be used to carry out the methods

of the present invention. ("Object" - as in "Object Oriented Programming" refers to an entity that can contain data or executable code or both.) The corrective action taken by the object description interface will preferably include adjusting data values in the device or supplying supplementary code either to fix the problem or to provide additional diagnostic capability to the device for determining the problem as in complex or intermittent failures. ~~{I know this isn't "claim language" but I wanted to get the idea across}~~ XML provides for a definition of allowed parameters, data communication between enabled devices, and labeling using tags. XML is rapidly being adopted in place of HTTP because HTTP provides only layout definition rather than content identification. Thus, machines are provided with increased data sharing capacity. It should be appreciated that, where a machine does not yet provide certain data, the customer can be prompted to provide answers in the normal process of help-desk troubleshooting. --